

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A surface mounting device, comprising:

a plurality of transfers each configured to receive and to transport printed circuit boards; and

a plurality of conveyers configured to receive the printed circuit boards from the plurality of transfers, to transport the printed circuit boards to a parts mounting work position within the device, to discharge the printed circuit boards to another of the plurality of ~~conveyers~~ conveyers for transport to another parts mounting work position within the device, and to discharge the printed circuit boards to the plurality of transfers when a parts mounting operation is complete.

2. (Currently Amended) The surface mounting device of claim 1, wherein the plurality of transfers comprises:

a first transfer installed at a first end of a base frame and configured to supply printed circuit boards to at least one of the plurality of ~~conveyers~~ conveyers; and

a second transfer installed at a second end of the base frame and configured to receive the printed circuit boards discharged from at least one of the plurality of ~~conveyers~~

conveyers and to transfer the printed circuit boards to an area outside of the surface mounting device.

3. (Currently Amended) The surface mounting device of claim 2, wherein the first and second transfers each ~~comprise~~ comprises:

a transfer guide frame configured to guide the printed circuit boards;

a plurality of transfer rollers installed at a predetermined interval in side walls of the transfer guide frame and configured to rotate when a rotating motor is driven; and

a belt member provided on the plurality of transfer rollers and configured to move in response to the rotation of the plurality of transfer rollers, and to receive and carry the printed circuit board.

4. (Previously Presented) The surface mounting device of claim 2, wherein each of the plurality of conveyers comprises:

a first conveyer unit provided on the base frame and configured to move in a predetermined direction and to receive and carry the printed circuit boards supplied from the first transfer; and

a second conveyer unit provided on the base frame and configured to move in a predetermined direction, to receive the printed circuit boards from the first conveyer unit, and to carry and transfer the printed circuit boards to the second transfer.

5. (Previously Presented) The surface mounting device of claim 4, wherein the first conveyer unit comprises:

a first conveyer configured to receive and to carry the printed circuit boards supplied by the first transfer; and

a first horizontal driving unit installed on a lower portion of the first conveyer and configured to move the first conveyer in a predetermined direction.

6. (Previously Presented) The surface mounting device of claim 5, wherein the second conveyer unit comprises:

a second conveyer configured to receive and to discharge the printed circuit boards supplied by the first conveyer; and

a second horizontal driving unit installed on a lower portion of the second conveyer and configured to move the second conveyer in a predetermined direction.

7. (Currently Amended) The surface mounting device of claim 6, wherein the first and second conveyers each ~~comprise~~ comprises:

a conveyer guide frame configured to guide each printed circuit board;

a plurality of ~~conveyor~~ conveyer rollers installed at a predetermined position of the conveyer guide frame ;

at least one conveyer lifting member installed on an inner surface of the conveyer

guide frame and configured to lift the printed circuit boards for a parts mounting operation and to lower the printed circuit boards upon completion of the parts mounting operation; and

a conveyer driving unit installed at an inner sidewall of the conveyer guide frame and configured to drive the plurality of conveyer rollers.

8. (Previously Presented) The surface mounting device of claim 6, wherein the first and second horizontal driving units are selected from a group consisting of a ball screw driving device, a timing belt driving device, and a linear motor.

9. (Previously Presented) The surface mounting device of claim 8, wherein the linear motor is one of a coil mover linear motor and a permanent magnet mover linear motor.

10. (Currently Amended) A surface mounting device, comprising:
a plurality of plane motion transfers configured to move in plane motion in a predetermined direction , and to carry, supply , and discharge printed circuit boards ; and
a plurality of ~~conveyors~~ conveyers configured to move horizontally in a predetermined direction and to receive and carry the printed circuit boards supplied from the plurality of plane motion transfers to a parts mounting work position, to discharge the printed circuit boards to another ~~conveyor~~ conveyer of the plurality of ~~conveyors~~ conveyers for transport to another parts mounting work position within the device, and to discharge the

printed circuit boards to the plurality of plane motion transfers when a parts mounting operation is complete.

11. (Currently Amended) The surface mounting device of claim 10, wherein the plurality of plane motion transfers comprises:

a first plane motion transfer configured to supply printed circuit boards to the plurality of ~~conveyors~~ conveyers; and

a second plane motion transfer configured to receive printed circuit boards discharged from the plurality of ~~conveyors~~ conveyers.

12. (Previously Presented) The surface mounting device of claim 11, wherein the first plane motion transfer comprises:

a first plane motion transfer unit configured to carry printed circuit boards; and

a first plane driving device configured to move the first plane motion transfer unit in plane motion.

13. (Previously Presented) The surface mounting device of claim 12, wherein the second plane motion transfer comprises:

a second plane motion transfer unit configured to carry printed circuit boards;

and

a second plane driving device configured to move the first plane motion transfer unit in plane motion.

14. (Currently Amended) The surface mounting device of claim 13, wherein the first and second plane motion transfers each ~~comprise~~ comprises:

a transfer guide frame configured to guide the printed circuit boards;

a plurality of transfer rollers installed at a predetermined interval on side walls of the transfer guide and configured to rotate when a rotating motor is driven; and

a belt member provided on the plurality of transfer rollers and configured to move in response to the rotation of the plurality of transfer rollers, and to receive and carry the printed circuit boards.

15. (Previously Presented) The surface mounting device of claim 13, wherein the first and second plane driving devices each comprise a plane motor.

16. (Currently Amended) The surface mounting device of claim 11, wherein the plurality of conveyers ~~comprise~~ comprises:

a first conveyer configured to move horizontally in a predetermined direction and to receive and carry printed circuit boards supplied by the first plane motion transfer unit; and

a second conveyer configured to move horizontally in a predetermined direction

and to receive and carry the printed circuit boards supplied by the first conveyer to the second plane motion transfer unit.

17. (Previously Presented) The surface mounting device of claim 16, wherein the first conveyer comprises:

a first conveyer unit configured to receive and to carry the printed circuit boards supplied from the first plane motion transfer unit; and

a first horizontal driving unit provided at a lower portion of the first conveyer unit and configured to move the first conveyer unit horizontally.

18. (Previously Presented) The surface mounting device of claim 17, wherein the second conveyer comprises:

a second conveyer unit configured to receive, carry, and discharge the printed circuit boards supplied by the first conveyer unit; and

a second horizontal driving unit provided at a lower portion of the second conveyer unit and configured to move the second conveyer unit horizontally.

19. (Currently Amended) The surface mounting device of claim 18, wherein the first and second conveyer units each comprise:

a conveyer guide frame configured to guide each printed circuit boards;

a plurality of ~~conveyor-conveyer~~ rollers, provided on the conveyer guide frame;
at least one conveyer lifting member provided on an inner surface of the conveyer guide frame and configured to lift a printed circuit board for a parts mounting operation and to lower the printed circuit board upon completion of the parts mounting operation; and
a conveyer driving unit installed at an inner sidewall of the conveyer guide frame and configured to drive the plurality of ~~conveyor-conveyer~~ rollers.

20. (Previously Presented) The surface mounting device of claim 18, wherein the first and second horizontal driving units are selected from a group consisting of a ball screw driving device, a timing belt driving device, and a linear motor.

21. (Previously Presented) The surface mounting device of claim 20, wherein the linear motor is one of a coil mover linear motor and a permanent magnet mover linear motor.

22. (Currently Amended) A surface mounting method, comprising:
carrying a first printed circuit board loaded on a first transfer to a first conveyer ~~by~~
of a device under control of a controller;

carrying the first printed circuit board on the first ~~conveyor-conveyer~~ and
transferring the first printed circuit board from the first ~~conveyor-conveyer~~ to a second
conveyer ~~by~~ of said device under control of the controller;

mounting parts on the first printed circuit board carried by the second conveyer by under control of the controller, and carrying a second printed circuit board loaded on the first transfer to the first conveyer when the first printed circuit board is carried to the second conveyer; and

discharging the first printed circuit board to a second transfer by under control of the controller, and carrying the second printed circuit board carried by the first conveyer to the second conveyer when the parts mounting operation on the first printed circuit board is complete.

23. (Previously Presented) The surface mounting method of claim 22, wherein carrying the first printed circuit board further comprises mounting parts on the first printed circuit board as it is carried by the first conveyer and thereafter transferring the first printed circuit board to the second conveyer.

24. (Previously Presented) The surface mounting method of claim 23, wherein mounting parts on the first printed circuit board carried by the second conveyer and carrying the second printed circuit board loaded on the first transfer to the first conveyer when the first printed circuit board is carried to the second conveyer further comprises discharging the first printed circuit board on which parts are mounted to the second transfer and carrying the second

printed circuit board loaded on the first transfer to the first conveyer when parts have been mounted on the first printed circuit board .

25. (Currently Amended) A surface mounting method, comprising:

supplying printed circuit boards loaded on a first plane motion transfer, which is configured to move in plane motion so as to align with a first ~~conveyor~~ conveyer and a second ~~conveyor~~ conveyer, to the first conveyer or the second ~~conveyor~~ conveyer;

mounting parts on the printed circuit boards carried by the first conveyer or the second conveyer; and

discharging the printed circuit boards from the first conveyer to the second conveyer or to a second plane motion transfer, or from the second conveyer to a the first conveyer or to the second plane motion transfer, which wherein the second plane motion transfer is configured to move in plane motion so as to align with the first ~~conveyor~~ conveyer and the second ~~conveyor~~ conveyer when a parts mounting operation is complete.

26. (Currently Amended) The surface mounting method of claim 25, wherein supplying printed circuit boards loaded on the first plane motion transfer to the first conveyer or the second ~~conveyor~~ conveyer further comprises moving the first plane motion transfer to a first end of the first conveyer and supplying a printed circuit board to the first conveyer, and

thereafter moving the first plane motion transfer to a first end of the second conveyer and supplying a printed circuit board to the second conveyer.

27. (Currently Amended) The surface mounting method of claim 26, further comprising returning the first plane motion transfer to the first end of the first conveyer and supplying a printed circuit board to the first conveyer after supplying a printed circuit board to the second ~~conveyor~~ conveyer.

28. (Currently Amended) The surface mounting method of claim 25, wherein discharging the printed circuit board from the first ~~conveyor~~ conveyer or the second ~~conveyor~~ conveyer to the second plane motion transfer when the parts mounting operation is complete further comprises moving the second plane motion transfer unit to a second end of the first conveyer and discharging the printed circuit board from the first ~~conveyor~~ conveyer to the second plane motion transfer and thereafter moving the second plane motion transfer to a second end of the second conveyer and discharging the printed circuit board from the second conveyer to the second plane motion transfer.

29. (Currently Amended) The surface mounting method of claim 28, further comprising returning the second plane motion transfer to the second end of the first conveyer

and discharging a printed circuit board from the first conveyer to the second plane motion transfer after discharging the printed circuit board from the second ~~conveyor~~ conveyer.

30. (Currently Amended) The surface mounting device of claim 2, wherein the first transfer is configured to alternately supply printed circuit boards to the plurality of ~~conveyors~~ conveyers.

31. (Currently Amended) The surface mounting device of claim 2, wherein the second transfer is configured to alternately receive printed circuit boards discharged from the plurality of ~~conveyors~~ conveyers.

32. (Currently Amended) The surface mounting device of claim 11, wherein the first plane motion transfer unit is configured to alternately supply printed circuit boards to the plurality of ~~conveyors~~ conveyers.

33. (Currently Amended) The surface mounting device of claim 11, wherein the second plane motion transfer unit is configured to alternately receive printed circuit boards discharged from the plurality of ~~conveyors~~ conveyers.

34. (Currently Amended) The surface mounting device of claim 16, wherein the second ~~conveyor~~ conveyer is also configured to receive printed circuit boards from the first plane motion transfer.

35. (Currently Amended) The surface mounting method of claim 22, further comprising alternately supplying printed circuit boards by means of the first transfer to the first and second ~~conveyor~~ conveyer units, and alternately receiving printed circuit boards at the second transfer from the first and second ~~conveyor~~ conveyer units after parts mounting is complete until a supply of printed circuit boards is exhausted.

36. (Currently Amended) A surface mounting method, comprising:
supplying printed circuit boards loaded on a first plane motion transfer to a first ~~conveyor~~ conveyer and to a second ~~conveyor~~ conveyer by moving the first plane motion transfer to a first end of the first ~~conveyor~~ conveyer and supplying a printed circuit board to the first ~~conveyor~~ conveyer, and thereafter moving the first plane motion transfer to a first end of the second ~~conveyor~~ conveyer and supplying a printed circuit board to the second ~~conveyor~~ conveyer;

mounting parts on the printed circuit boards carried by the first ~~conveyor~~ conveyer or the second ~~conveyor~~ conveyer at a predetermined time interval; and

discharging the printed circuit board from the first ~~conveyor~~ conveyer or the second ~~conveyor~~ conveyer to a second plane motion transfer when the parts mounting operation is complete.

37. (Currently Amended) A surface mounting method, comprising:

supplying printed circuit boards loaded on a first plane motion transfer to a first ~~conveyor~~ conveyer and to a second ~~conveyor~~ conveyer;

mounting parts on the printed circuit boards carried by the first ~~conveyor~~ conveyer or the second ~~conveyor~~ conveyer;

moving a second plane motion transfer to an end of the first ~~conveyor~~ conveyer and discharging the printed circuit board from the first ~~conveyor~~ conveyer to the second plane motion transfer; and

thereafter moving the second plane motion transfer to an end of the second ~~conveyor~~ conveyer and discharging the printed circuit board from the second ~~conveyor~~ conveyer to the second plane motion transfer.